

compartment end furthest away from the conduit box.

(4) For motor assemblies incorporating a conduit box which is isolated from the winding compartment by an isolating barrier the following additional tests shall be conducted—

(i) For conduit boxes with an internal free volume greater than 150 cubic inches, two ignition points shall be used, one as close to the geometric center of the conduit box as practical and the other at the furthest point away from the isolating barrier between the conduit box and the winding compartment. Recording of pressure shall be on the same and opposite sides as the ignition point furthest from the isolating barrier between the conduit box and the winding compartment. Conduit boxes with an internal free volume of 150 cubic inches or less shall have one test hole for ignition located as close to the geometric center of the conduit box as practical and one for recording of pressure located on a side of the conduit box.

(ii) The conduit box shall be tested separately. Six tests at  $9.4 \pm 0.4$  percent methane by volume within the conduit box shall be conducted followed by two tests at  $7.0 \pm 0.3$  percent methane by volume. Then two tests at  $9.4 \pm 0.4$  percent methane by volume with a quantity of coal dust equal to 0.05 ounces per cubic foot of internal free volume of the conduit box and meeting the specifications in paragraph (c)(3) of this section shall be conducted. For conduit boxes with an internal free volume of more than 150 cubic inches, the number of tests shall be evenly divided between each ignition point.

(iii) The motor assembly shall be tested following removal of the isolating barrier or one sectionalizing terminal (as applicable). Six tests at  $9.4 \pm 0.4$  percent methane by volume in the winding compartment and conduit box shall be conducted using three ignition locations. The ignition shall be at one end of the winding compartment for one stationary and one rotating test; the opposite end for one stationary and one rotating test; and at the ignition point that produced the highest pressure on the previous test in paragraph (c)(4)(ii) of this section in the conduit box for one stationary and

one rotating test. Motor assemblies that use multiple sectionalizing terminals shall have one test conducted as each additional terminal is removed. Each of these tests shall use the rotor state and ignition location that produced the highest pressure in the previous tests.

(d) A motor assembly incorporating a conduit box that is isolated from the winding compartment that exhibits pressures exceeding 110 psig, while testing during removal of any or all isolating barriers as specified in paragraph (c)(4) of this section, shall have a warning statement on the approval plate. This statement shall warn that the isolating barrier must be maintained to ensure the explosion-proof integrity of the motor assembly. A statement is not required when the motor assembly has withstood a static pressure of twice the maximum pressure recorded in the explosion tests of paragraph (c)(4) of this section. The static pressure test shall be conducted on the motor assembly with all isolating barriers removed, and in accordance with § 7.307 of this part.

(e) *Acceptable performance.* Explosion tests of a motor assembly shall not result in—

- (1) Discharge of flames.
- (2) Ignition of the explosive mixture surrounding the motor assembly in the chamber.
- (3) Development of afterburning.
- (4) Rupture of any part of the motor assembly or any panel or divider within the motor assembly.
- (5) Clearances, in excess of those specified in this subpart, along accessible flame-arresting paths, following any necessary retightening of fastenings.
- (6) Pressure exceeding 110 psig, except as provided in paragraph (d) of this section unless the motor assembly has withstood a static pressure of twice the maximum pressure recorded in the explosion tests of this section following the static pressure test procedures of § 7.307 of this part.
- (7) Permanent deformation greater than 0.040 inches per linear foot.

**§ 7.307 Static pressure test.**

(a) *Test procedure.* (1) The enclosure shall be internally pressurized to a

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minimum of 150 psig and the pressure maintained for a minimum of 10 seconds.

(2) Following the pressure hold, the pressure shall be removed and the pressurizing agent removed from the enclosure.

(b) *Acceptable performance.* (1) The enclosure during pressurization shall not exhibit—

(i) Leakage through welds or casting; or

(ii) Rupture of any part that affects the explosion-proof integrity of the enclosure.

(2) The enclosure following removal of the pressurizing agent shall not exhibit—

(i) Visible cracks in welds;

(ii) Permanent deformation exceeding 0.040 inches per linear foot; or

(iii) Clearances, in excess of those specified in this subpart, along accessible flame-arresting paths, following any necessary retightening of fastenings.

#### § 7.308 Lockwasher equivalency test.

(a) *Test procedure.* (1) Each test sample shall be an assembly consisting of a fastening with a locking device. Each standard sample shall be an assembly consisting of a fastening with a lockwasher.

(2) Five standard samples and five test samples shall be tested.

(3) Each standard and test sample shall use a new fastening of the same specifications as being used on the motor assembly.

(4) A new tapped hole shall be used for each standard and test sample. The hole shall be of the same specifications as used on the motor assembly.

(5) Each standard and test sample shall be inserted in the tapped hole and continuously and uniformly tightened at a speed not to exceed 30 rpm until the fastening's proof load is achieved. The torquing device shall not contact the locking device or the threaded portion of the fastening.

(6) Each standard and test sample shall be engaged and disengaged for 15 full cycles.

(b) *Acceptable performance.* The minimum torque value required to start removal of the fastening from the installed position (minimum breakway torque) for any cycle of any test sample shall be greater than or equal to the average breakway torque of each removal cycle of every standard sample.

#### § 7.309 Approval marking.

Each approved motor assembly shall be identified by a legible and permanent approval plate inscribed with the assigned MSHA approval number and a warning statement as specified in § 7.306(d) of this part. The plate shall be securely attached to the motor assembly in a manner that does not impair any explosion-proof characteristics.

#### § 7.310 Post-approval product audit.

Upon request by MSHA but not more than once a year, except for cause, the approval holder shall make a motor assembly available for audit at no cost.

#### § 7.311 Approval checklist.

Each motor assembly bearing an MSHA approval marking shall be accompanied by a list of items necessary for maintenance of the motor assembly as approved.